

WHAT IS CLAIMED IS:

1. A fixing apparatus comprising:

a fixing device including a fixing roller and a press roller set in contact with the fixing roller, 5 configured to heat and press a to-be-fixed material by making the material pass between the fixing roller and press roller; and

an induction heating device provided inside the fixing roller, configured to heat the fixing roller by 10 induction heating,

wherein

the induction heating device includes a core member and an excitation coil wound around the core member, and

15 the apparatus satisfies a relationship represented by  $L/R \times 0.3 \leq B \leq D/3$ ,

where  $D$  represents an inner diameter of the heat roller,  $L[\mu H]$  represents an inductance of the excitation coil,  $R[\Omega]$  represents a resistance of the 20 heat roller, and  $B$  represents a width of a portion of the core member, which opposes at least the heat roller.

2. The fixing apparatus according to claim 1,

wherein the  $L/R$  satisfies a relationship represented by 25  $24 \leq L/R \leq 32$ .

3. The fixing apparatus according to claim 1, wherein the excitation coil is made of a Litz wire

of 16 strands, and a diameter of the Litz wire is 0.5 mm.

4. The fixing apparatus according to claim 1, wherein the core member is made of an Mn-Ni-based, 5 Ni-Zn-based or ceramic-based material.

5. A fixing apparatus comprising:

a fixing device including a fixing roller and a press roller set in contact with the fixing roller, configured to heat and press a to-be-fixed material by 10 making the material pass between the fixing roller and press roller; and

an induction heating device provided inside the fixing roller, configured to heat the fixing roller by induction heating,

15 wherein

the induction heating device includes a core member and an excitation coil wound around the core member,

the apparatus satisfies a relationship represented 20 by  $L/R \times 0.3 \leq B \leq D/3$ ,

where D represents an inner diameter of the heat roller,  $L[\mu H]$  represents an inductance of the excitation coil,  $R[\Omega]$  represents a resistance of the heat roller, and B represents a width of a portion of 25 the core member, which opposes at least the heat roller, and

a drive circuit configured to supply a direct

current voltage is connected to the excitation coil via  
a switching circuit.